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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,379	12/04/2003	Harry Contopanagos	BP2110DIV	6971
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AUSTIN, TX 78716-0727				
EXAMINER				
TUGBANG, ANTHONY D				
ART UNIT		PAPER NUMBER		
3729				
MAIL DATE		DELIVERY MODE		
08/11/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/727,379

Applicant(s)

CONTOPANAGOS ET AL.

Examiner

A. Dexter Tugbang

Art Unit

3729

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Response to Amendment

1. The applicant(s) amendment filed on April 28, 2008 has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1 and 4 through 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujiki 5,497,137.

Fujiki discloses a method for manufacturing an on-chip inductor comprising: creating a dielectric layer (e.g. 14c); and creating a conductive winding (e.g. 22) on the dielectric layer where the conductive winding has a substantially square geometry, with shaped angled exterior corners, and a spiral configuration.

Regarding Claim(s) 5, Fujiki further teaches that the conductive winding is formed by creating a first winding (e.g. 22, 24a) on a first layer (e.g. 14c), creating a second winding (e.g. 28) on a second layer (e.g. 14d), and connecting the first winding to the second winding with a bridge (e.g. 15a, 15b, 15c).

As best understood, because that shape of the conductive winding of Fujiki is the exact same as the applicant(s), particularly the angled exterior corners, Fujiki is inherently capable of meeting all of the wherein clauses of Claims 1, 4 and 6.

4. Claims 1, 4, 6 and 7 are rejected under 35 U.S.C. 102(c) as being anticipated by Apel et al 6,407,647.

Apel discloses a method for manufacturing an on-chip inductor comprising: creating a dielectric layer (e.g. 26, in Fig. 3C); and creating a conductive winding (e.g. 12) on the dielectric layer where the conductive winding has a substantially square geometry, spiral configuration, angled exterior corners, and angled interior corners.

As best understood, because that shape of the conductive winding of Apel is the exact same as the applicant(s), particularly the angled exterior corners and the angled interior corners, Apel is inherently capable of meeting all of the wherein clauses of Claims 1, 4, 6 and 7.

Claim Rejections - 35 USC § 103

5. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slate 2,843,829 in view of IEEE Publication to Tiemeijer et al, referred to hereinafter as Tiemeijer.

Slate discloses a method of making an on-chip inductor comprising: creating a dielectric layer (e.g. 11 in Figure 5); creating a conductive winding (e.g. 15, 16) with a spiral configuration on the dielectric layer, wherein corners of the conductive winding are geometrically shaped to reduce impedance of the on-chip inductor when at an operating frequency (col. 2, lines 41-46).

Slate does not mention anything about the effects on inductance.

Tiemeijer shows that inductance can be stabilized, i.e. providing negligible effects, by splitting the inductor into parallel loops (see Figure 4 description, and Figure 1), or parallel conductors.

It is noted that the conductive winding of Slate is already in parallel loops (e.g. 15, 16). Therefore, in light of the teaching of Tiemeijer, it would have obvious to one of ordinary skill in

the art at the time the invention was made that the corners of Slate would provide negligible effects of inductance, or stabilization of inductance.

6. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slate in view of Tiemeijer, as applied to claim 1 above, and further in view of Fujiki.

Slate, as modified by Tiemeijer, discloses the claimed manufacturing method as relied upon above. The modified Slate method does not teach creating the geometric shaping of the comers to include an interior angle per comer of approximately ninety degrees, and an exterior angle per comer of approximately one hundred thirty-five degrees and creating a first winding on a first layer; creating a second winding on a second layer; and connecting the first winding to the second winding with at least one bridge.

Fujiki teaches that a conductive winding can be formed by creating a first winding (e.g. 22, 24a) on a first layer (e.g. 14c), creating a second winding (e.g. 28) on a second layer (e.g. 14d), and connecting the first winding to the second winding with a bridge (e.g. 15a, 15b, 15c). Moreover, because that shape of the conductive winding of Fujiki is the exact same as the applicant(s), thus, the angled exterior corners and interior corners are the same. The benefits of the inductor of Fujiki allows transmissions at higher frequencies (col. 1, lines 1-14).

It would have obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Slate by utilizing the conductive winding connection and structure of Fujiki, to positively allow transmissions at higher frequencies.

7. Claims 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slate in view of Tiemeijer, as applied to claim 1 above, and further in view of the IEEE Publication to Craninckx et al.

Slate, as modified by Tiemeijer, discloses the claimed manufacturing method as relied upon above. The modified Slate method does not teach creating the geometric shaping of the corners to include an interior angle per corner of approximately one hundred thirty-five degrees, and an exterior angle per corner of approximately one hundred thirty-five degrees.

Craninckx shows in Figures 2a and 2b, that a conductive winding can have a square, or octagonal shape, as art recognized equivalent windings. In Figure 2b, the winding has a geometric shaping of the corners to include an interior angle per corner of approximately one hundred thirty-five degrees, and an exterior angle per corner of approximately one hundred thirty-five degrees.

It would have obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Slate by providing a geometric shaping the corners at angles taught by Craninckx, to produce an art recognized equivalent inductor.

Furthermore, the octagonal shape of the corners (in Figure 2b) of the winding of Craninckx would an obvious effect of reducing current turbulence in comparison to the square shape of the corners (in Figure 2a).

Response to Arguments

8. The applicant(s) arguments filed on April 28, 2008 have been fully considered, but they are now moot in view of the new grounds of rejections set forth above. It is noted that the scope of Claim 1 has clearly been narrowed to the extent that the claims now require *both* the reduction of impedance and the negligible effects of inductance to occur *at the same operating frequency*.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/A. Dexter Tugbang/
Primary Examiner
Art Unit 3729**

August 4, 2008